Condensed from 15 Years Ago:

Validity of Left Ventricular Ejection Fractions Measured at Rest and Peak Exercise By Equilibrium Radionuclide Angiography Using Short Acquisition Times

Matthias E. Pfisterer, Donald R. Ricci, Gerhard Schuler, Sue S. Swanson, Donald G. Gordon, Kirk E. Peterson and William L. Ashburn

University of California Medical Center, San Diego, California

To validate ejection fraction (EF) calculations from 5 and 2 min of multiple-gated equilibrium radionuclide angiographic data and to establish its utility during alterations in cardiac performance, we studied 38 patients with chest pain suggestive of coronary artery disease. Twenty-four patients underwent contrast ventriculography (CV) as well as first-pass (FP) and equilibrium (EQ) radionuclide angiography at rest, and 14 additional patients had both radionuclide tests performed at rest as well as during peak supine bicycle exercise. The resting 5-min acquisition ejection fractions were compared between each method and the following correlations were generated: \( r = 0.92, n = 24 \) (CV-EQ), \( r = 0.92, n = 24 \) (CV-FP), and \( r = 0.95, n = 38 \) (FP-EQ). The variability of EQ-EF calculations between two independent observers was < 2%; the mean absolute difference between two sequential 2-min acquisitions and the 5-min recordings was \(-0.1\% \pm 1.6\%\), and the reproducibility of sequential 2-min ejection fractions was excellent (\( r = 0.98 \)). EQ and FP ejection fractions at symptom-limited exercise correlated well (\( r = 0.96, n = 14 \)). We conclude that equilibrium radionuclide angiography is a valid method to measure EF both at rest as well as during peak exercise even when 2-min acquisition periods are used.

J Nucl Med 1979; 20:484-490